

Message

From: Crowell, Sean M. [scrowell@ou.edu]
Sent: 5/8/2018 3:15:00 PM
To: Troche, Luis [Troche.Luis@epa.gov]; Martinez, Cynthia C. [cmartinez@ou.edu]
Subject: Re: CEC - GeoCarb Collaborations

Hi Luis,

Yes, I'm out of town this week at the International Workshop on Greenhouse Gas Measurements from Space (IWGGMS). I can talk for 30 minutes or so at 1pm, but will have to drop off for a 1:30pm public lecture by the director of the Canadian Space Agency. Please give me a call on my mobile number below.

Thanks!

Sean

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Dr. Sean Crowell
Project Scientist, GeoCarb
University of Oklahoma
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From: "Troche, Luis" <Troche.Luis@epa.gov>
Date: Tuesday, May 8, 2018 at 11:10 AM
To: "Sean.M.Crowell-1 Sean.M.Crowell-1" <scrowell@ou.edu>, "Martinez, Cynthia C." <cmartinez@ou.edu>
Subject: RE: CEC - GeoCarb Collaborations

Hi Sean-

I tried calling you but there is no answer or voice mail. I'd like to chat to learn more about who the partners are in Canada and Mexico and the work involved, as well as any opportunities through the trilateral CEC.

If you are available, perhaps we can chat for 30 minutes? At 1PM or so?

Luis Troche

Senior Advisor for North American Affairs
CEC General Standing Committee
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From: Crowell, Sean M. [mailto:scrowell@ou.edu]
Sent: Tuesday, May 08, 2018 10:44 AM

To: Martinez, Cynthia C. <cmartinez@ou.edu>; Troche, Luis <Troche.Luis@epa.gov>

Subject: Re: CEC - GeoCarb Collaborations

Hi Luis,

It's great to meet you! Please pass along any questions/requests you have for the upcoming meetings. I am working with colleagues in Canada and Mexico at present to highlight existing and planned collaborations.

Thanks!

Sean

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Dr. Sean Crowell
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From: "Martinez, Cynthia C." <cmartinez@ou.edu>
Date: Monday, May 7, 2018 at 4:50 PM
To: "Troche, Luis" <Troche.Luis@epa.gov>
Cc: "Sean.M.Crowell-1 Sean.M.Crowell-1" <scrowell@ou.edu>
Subject: CEC - GeoCarb Collaborations

Luis,

As I mentioned in our call, our project scientist Sean Crowell is coordinating ongoing discussions for collaboration with Mexican and Canadian counterparts. Our Mexican partners are actively seeking funding to construct our TCCON (Total Carbon Column Observing Network) site. It would be helpful for our project to connect with agencies that might be able to provide such financial support.

Sean would best be able to provide you with additional details on collaboration opportunities with Canada and any specific agencies in Mexico that are being targeted.

Thank you for taking the time to speak with us again.

Best,

Cynthia Martinez
Geostationary Carbon Cycle Observatory

From: Hyland, Patrick T.
Sent: Tuesday, May 1, 2018 2:36 PM
To: Troche, Luis <Troche.Luis@epa.gov>; Hong, Nadtya <Hong.Nadtya@epa.gov>; Nathalie Daoust (<ndaoust@cec.org>) <ndaoust@cec.org>
Cc: Palmer, Robert D. <rpalmer@ou.edu>; Emily Summars <emily.summars@noaa.gov>; Mc Pherson, Renee A. <renee@ou.edu>; Martinez, Cynthia C. <cmartinez@ou.edu>

Subject: Re: For Mon May 7 or Tuesday May 8 - Conference call to discuss potential deliverables for the 2018 CEC Council Session in Oklahoma City

Let me connect you with Bob (ARRC), Emily (CIMMS), Renee (SCCSC), and Cynthia (geoCARB) to see if they would be available to join a call on either Monday or Tuesday.

Patrick Hyland, CTA
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From: Troche, Luis <Troche.Luis@epa.gov>
Sent: Tuesday, May 1, 2018 12:24:06 PM
To: Hyland, Patrick T.; Hong, Nadtya
Cc: Nathalie Daoust (ndaoust@cec.org)
Subject: For Mon May 7 or Tuesday May 8 - Conference call to discuss potential deliverables for the 2018 CEC Council Session in Oklahoma City

Hi Patrick—welcome back!

Following up on Nadtya's email—would it be easier if we have our call next Monday or Tuesday? Any time 1:00PM EDT or later would work both days.

Potential agenda

- 15 min with Dr. Palmer
- 30 min with CIMMS
- 30 min with SCCSC
- 30 min with GeoCARB

Topics as highlighted below and any other updates since our visit.

Please let us know on availability and timing.

Thanks.

As we discussed during our recent visit, we would like to explore in more detail exactly what we might consider as potential deliverables to be conceptualized or developed before the Council Session. From my notes, I recall the following potential opportunities (in too-bright yellow):

(confirmed attending) ARRC (<https://arrc.ou.edu/>) **and NSSL** (<https://www.nssl.noaa.gov/>): A national leader in radar research and severe storm research. Experts on radar meteorology can discuss the latest advancements in weather-radar technology, collaboration with the US, Mexico, and Canada, and the use of weather radar not only to look at weather, but to monitor birds, bats, insects, and migration patterns (aeroecology).

Advanced Radar Research Center

arrc.ou.edu

Welcome from the Executive Director Welcome to the Advanced Radar Research Center (ARRC) at the University of Oklahoma! The ARRC is now more than 10 years old, and in that time has grown from a small group of energetic faculty and students into the largest academic radar program in the nation with well over 120 members.

-- Follow up needed: 15 minutes with Dr. Palmer. He suggested that we could help engage Mexican industry/agencies to produce radars like what the US and Canada are producing in partnership. Perhaps Dr. Palmer can provide more detail? Could the Mexican partner be a government agency?

(confirmed attending) CIMMS (<http://cimms.ou.edu/>) **and NSSL:** Researchers at the National Weather Center are working on developing new advances in forecasting and warning processes. FACETs (Forecasting a Continuum of Environmental Threats) is a new program that is utilizing Probabilistic Hazard Information (PHI) to disseminate warnings in an entirely new fashion. NSSL HyDROS is a hydrometeorology group working on developing a new flash-flood model for better prediction of dangerous floods (FLASH model). Researchers from these groups can discuss their work in the NOAA Hazardous Weather Testbed (HWT).

-- Follow up needed: 20-30 minutes with ?? the North America Ministers are interested in extreme weather as we have an extreme weather project in CEC and it is also a priority for the G20. Is this the right center to explore possible extreme weather deliverables?

(confirmed attending) South Central Climate Science Center (<http://southcentralclimate.org/>): Established in 2012, the South Central Climate Science Center provides decision makers with the science, tools, and information they need to address the impacts of climate variability and change on their areas of responsibility. They promote multi-institutional and stakeholder-driven approaches to assessing the impact of climate extremes on natural and cultural resources.

-- Follow up needed: 20-30 minutes with Renee. Would like to explore more how to highlight the linkages to indigenous peoples. Renee was also going to explore if there are opportunities to engage Canada and Mexico.

(confirmed attending) GeoCARB: The largest grant ever awarded to the University of Oklahoma. The primary goals of the Geostationary Carbon Cycle Observatory (GeoCARB), led by Dr. Berrien Moore (Director of the National Weather Center and Dean of the College of Atmospheric & Geographic Sciences) of the University of Oklahoma in Norman, are to monitor plant health and vegetation stress throughout the Americas, and to probe, in unprecedented detail, the natural sources, sinks and exchange processes that control carbon dioxide, carbon monoxide and methane in the atmosphere. The press release from NASA (<https://www.nasa.gov/press-release/nasa-announces-first-geostationary-vegetation-atmospheric-carbon-mission>) and presentation (https://www.nacarbon.org/meeting_ab_presentations/2017/2017_Mar28_AM_Moore_III_217.pdf)

showing program details and international partners (including groups in Mexico) are presented here.

-- Follow up needed: 20-30 minutes with Cintia/others? Explore if NWC and our Secretariat could collaborate on new atmospheric, species migration, and event marine debris layers for the CEC North American Atlas. For this, I am bringing to the call our experts on information/atlas from the Secretariat. Explore identifying Mexican Space Agency to partner) and potential Canadian entity to partners on

GeoCARB (GeoCARB building a T-CON station outside of Mexico City to support research on drought and agriculture; Oklahoma University has a campus in Puebla).?

(confirmed attending) Oklahoma Mesonet (<http://mesonet.org/>): Most sophisticated surface observation network (120 stations) in the United States, covering all 77 Oklahoma counties. The Oklahoma Mesonet has profound impacts for forecasting as well as for agriculture.

-- no follow up questions identified.

(TBD attendance) Center for Autonomous Sensing and Sampling (<https://cass.ou.edu/>): CASS's mission is to explore, advance, and develop complete adaptive and autonomous sensing and sampling systems for use in the atmosphere, on the ground, and in the water, and to help facilitate the integration of this technology across various disciplines and institutions. The goal of CASS is to establish itself as a recognized global leader in research, education, and development involving autonomous sensing and sampling solutions to address science and technology driven needs, fostering an environment for trans-disciplinary applications of this technology, and helping to promote the effective transfer of knowledge and technology to academia, government, and industry.

(TBD attendance) The University of Oklahoma Office of the Vice President for Research (<https://vpr-norman.ou.edu/>): The University of Oklahoma's Research Campus is a collaborative environment where academia, industry, and government build on the university's intellectual vitality. Collectively, the federal and private entities housed on the Research Campus represent more than 750 technology and knowledge-based jobs for the Norman community and the state of Oklahoma. Exciting new developments are in place, led by the OU VPR office, to grow the Norman Weather Enterprise with dramatic impacts on the Oklahoma economy. UAV/UAS research via CASS and the initiative to create the National Environmental Simulation and Testing Facility (<http://nest.ou.edu/>) are at the top of the list growing the Norman Weather Enterprise.

(TBD attendance) WDTD (<http://training.weather.gov/wdtd/>): This group trains all the National Weather Service forecasters in the United States, but has also provided training simulations for forecasters in Canada and Mexico

Of course, we would welcome any ideas that have evolved since our visit. The objective is to identify opportunities and select any low hanging fruit.